

REMARKS

Paragraph [0001] of the specification has been amended to provide current information regarding the applications.

This is in response to the Office Action mailed October 18, 2005.

Claims 1 through 24 are currently pending in the application.

Claims 1 through 15, 17 and 19 through 24 were rejected.

Claims 16 and 18 have been objected to as being dependent upon rejected base claims, but the indication of allowable subject matter in such claims is noted with appreciation.

Applicant has amended claims 1, 19, 22, 23, and 24, and respectfully requests reconsideration of the application as amended herein.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent 5,917,242 to Ball

Claims 1 through 10, 14, 17, 19, 20 and 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ball (U.S. Patent 5,917,242). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

After considering the cited prior art, the rejections, and the Examiner's comments, Applicant has amended the claimed inventions to clearly distinguish over the cited prior art. Applicant asserts that the cited prior art does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent

claims 1, 19, 22, 23, and 24 because, at the least, the cited prior art does not teach or suggest all the claim limitations.

Turning to the cited prior art, the Ball reference teaches or suggests one or more semiconductor die attached to portions of a substrate having electrical connections thereto using solder bumps and bond wires.

Applicant asserts that the Ball reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1, 19, 22, 23, and 24 because the Ball reference does not teach or suggest the claim limitations calling for “a substrate having a first surface, a second surface and at least one substantially centrally located opening therethrough, the at least one substantially centrally located opening in the substrate extending from the first surface to the second surface of the substrate”, and “a plurality of bond wires extending through the at least one substantially centrally located opening in the substrate and bonded from the active surface of the semiconductor die to the second surface of the substrate”. Applicant asserts that, in contrast to the claimed inventions of presently amended independent claims 1, 19, 22, 23, and 24, the Ball reference contains no teaching or suggestion whatsoever as to the location of any opening for any substrate described therein. Therefore, presently amended independent claims 1, 19, 22, 23, and 24 are allowable as well as the dependent claims therefrom.

The nonobviousness of independent claims 1, 19, 22, 23, and 24 precludes a rejection of claims 2 through 15, 17, 20, and 21 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claims 1, 19, 22, 23, and 24 and claims 2 through 15, 17, 20, and 21 which depend therefrom.

Obviousness Rejection Based on U.S. Patent No. 5,917,242 to Ball as applied to claim 1 above and further in view of U.S. Patent 5,744,383 to Fritz

Claims 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ball (U.S. Patent 5,917,242) as applied to claim 1 above and further in view of Fritz (U.S. Patent

5,744,383). Applicant respectfully traverses this rejection, as hereinafter set forth.

After considering the cited prior art, the rejections, and the Examiner's comments, Applicant has amended the claimed inventions to clearly distinguish over the cited prior art. Applicant asserts that any combination of the cited prior art does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1 and dependent claims 11 and 12 therefrom because, at the least, any combination of the cited prior art does not teach or suggest all the claim limitations.

Turning to the cited prior art, the Ball reference teaches or suggests one or more semiconductor die attached to portions of a substrate having electrical connections thereto using solder bumps and bond wires.

The Fritz reference teaches or suggests a semiconductor device using a carrier such as a TAB carrier.

Applicant asserts that any combination of the Ball reference and the Fritz reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claim 1 because the Ball reference does not teach or suggest the claim limitations calling for "a substrate having a first surface, a second surface and at least one substantially centrally located opening therethrough, the at least one substantially centrally located opening in the substrate extending from the first surface to the second surface of the substrate", and "a plurality of bond wires extending through the at least one substantially centrally located opening in the substrate and bonded from the active surface of the semiconductor die to the second surface of the substrate". Applicant asserts that, in contrast to the claimed invention of presently amended independent claim 1 neither the Ball reference nor the Fritz reference nor any combination of the Ball reference and the Fritz reference contains any teaching or suggestion whatsoever as to the location of any opening for any substrate described therein. Therefore, presently amended independent claim 1 is allowable as well as the dependent claims 11 and 12 therefrom.

The nonobviousness of independent claim 1 precludes a rejection of claims 11 and 12 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. See *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), see

also MPEP § 2143.03. Therefore, the Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 1 and claims 11 and 12 which depend therefrom.

Obviousness Rejection Based on U.S. Patent No. 5,917,242 to Ball in view of U.S. Patent 5,744,383 to Fritz as applied to claim 12 above and further in view of U.S. Patent 6,228,679 B1 to Chiu

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ball (U.S. Patent 5,917,242) in view of Fritz (U.S. Patent 5,744,383) as applied to claim 12 above and further in view of Chiu (U.S. Patent 6,228,679 B1). Applicant respectfully traverses this rejection, as hereinafter set forth.

After considering the cited prior art, the rejections, and the Examiner's comments, Applicant has amended the claimed inventions to clearly distinguish over the cited prior art. Applicant asserts that any combination of the cited prior art does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1 and dependent claim 13 therefrom because, at the least, any combination of the cited prior art does not teach or suggest all the claim limitations.

Turning to the cited prior art, the Ball reference teaches or suggests one or more semiconductor die attached to portions of a substrate having electrical connections thereto using solder bumps and bond wires.

The Fritz reference teaches or suggests a semiconductor device using a carrier such a TAB carrier.

The Chiu reference teaches or suggests an underfill material between the semiconductor die and a substrate.

Applicant asserts that any combination of the Ball reference, the Fritz reference, and the Chiu reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claim 1 because any combination of the Ball reference, the Fritz reference, and the Chiu reference does not teach or suggest the claim limitations calling for "a substrate having a first surface, a second surface and

at least one substantially centrally located opening therethrough, the at least one substantially centrally located opening in the substrate extending from the first surface to the second surface of the substrate”, and “a plurality of bond wires extending through the at least one substantially centrally located opening in the substrate and bonded from the active surface of the semiconductor die to the second surface of the substrate”. Applicant asserts that, in contrast to the claimed invention of presently amended independent claim 1 neither the Ball reference nor the Fritz reference nor the Chiu reference nor any combination of the Ball reference and the Fritz reference and the Chiu reference contains any teaching or suggestion whatsoever as to the location of any opening for any substrate described therein. Therefore, presently amended independent claim 1 is allowable as well as the dependent claim 13 therefrom.

The nonobviousness of independent claim 1 precludes a rejection of claim 13 which depends therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 1 and claim 13 depends therefrom.

Obviousness Rejection Based on U.S. Patent 5,917,242 to Ball in view of U.S. Patent 5,744,383 to Fritz and further in view of U.S. Patent 6,011,307 to Jiang et al.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ball (U.S. Patent 5,917,242) in view of Fritz (U.S. Patent 5,744,383) and further in view of Jiang et al. (U.S. Patent 6,011,307). Applicant respectfully traverses this rejection, as hereinafter set forth.

After considering the cited prior art, the rejections, and the Examiner’s comments, Applicant has amended the claimed inventions to clearly distinguish over the cited prior art. Applicant asserts that any combination of the cited prior art does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1 and dependent claim 15 therefrom because, at the least, any combination of the cited prior art does not teach or suggest all the claim limitations.

Turning to the cited prior art, the Ball reference teaches or suggests one or more semiconductor die attached to portions of a substrate having electrical connections thereto using

solder bumps and bond wires.

The Fritz reference teaches or suggests a semiconductor device using a carrier such as a TAB carrier.

The Jiang reference teaches or suggests mirrored connection bond pads for a semiconductor die.

Applicant asserts that any combination of the Ball reference, the Fritz reference, and the Jiang reference does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claim 1 because any combination of the Ball reference, the Fritz reference, and the Jiang reference does not teach or suggest the claim limitations calling for “a substrate having a first surface, a second surface and at least one substantially centrally located opening therethrough, the at least one substantially centrally located opening in the substrate extending from the first surface to the second surface of the substrate”, and “a plurality of bond wires extending through the at least one substantially centrally located opening in the substrate and bonded from the active surface of the semiconductor die to the second surface of the substrate”. Applicant asserts that, in contrast to the claimed invention of presently amended independent claim 1 neither the Ball reference nor the Fritz reference nor the Jiang reference nor any combination of the Ball reference and the Fritz reference and the Jiang reference contains any teaching or suggestion whatsoever as to the location of any opening for any substrate described therein. Therefore, presently amended independent claim 1 is allowable as well as the dependent claim 15 therefrom.

The nonobviousness of independent claim 1 precludes a rejection of claim 15 which depends therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. See *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), see also MPEP § 2143.03. Therefore, the Applicant requests that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claim 1 and claim 15 depends therefrom.

Objections to Claims/Allowable Subject Matter

Claims 16 and 18 stand objected to as being dependent upon rejected base claims, but are indicated to contain allowable subject matter and would be allowable if placed in appropriate independent form. Applicant appreciates the indication of allowable subject matter, but has not yet amended claims 16 to be in independent form.

ENTRY OF AMENDMENTS

The amendments to claims 1, 19, 22, 23, and 24 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application to clearly comply with the provisions of 35 U.S.C. § 132. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1 through 24 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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